

REMARKS

The applicant appreciates the examiner's thorough examination of the subject application and requests reexamination and reconsideration of the subject application in view of the preceding amendments and the following remarks.

The applicant appreciates the examiner allowing claims 15-22 and 25-27.

The examiner states that claims 2-5 are objected to, as they are dependant upon a rejected base claim. The examiner further states that these claims would be allowable if they were rewritten in independent form including all the limitations of the base claim and any intervening claims. In response to this objection, the applicant has amended claim 1 to include the subject matter of claim 2 (which has been cancelled). Further, claims 3 and 4 were amended to make them dependant upon claim 1. Accordingly, applicant respectfully asserts that amended claim 1 (which incorporates the subject matter of cancelled claim 2) is allowable. Further, as dependant claims 3-5 either directly or indirectly rely upon an allowable base claim (i.e., amended claim 1), the applicant respectfully asserts that these claims are also allowable.

The examiner rejects claims 1 and 9-14 under 35 USC §103(a) based on the teachings of Danisch (U.S. Patent No. 6,127,672). As stated above, applicant respectfully asserts that amended claim 1 (which includes the subject matter of objected to and cancelled claim 2) is allowable. Accordingly, applicant respectfully asserts that claims 9-13 are allowable, as they either directly or indirectly depend upon an allowable base claim (i.e., amended claim 1).

Additionally, applicant has amended claim 14 to include the subject matter of cancelled claim 2, a claim that the examiner objected to as being dependant upon a rejected base claim. Accordingly, applicant respectfully asserts that amended claim 14 is allowable over the cited reference.

Attached is a marked-up version of the changes being made by the current amendment.

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Applicant asks that all claims be allowed. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Version with markings to show changes made

In the claims:

Claim 2 has been cancelled.

Claim 1, 3, 4, and 14 have been amended as follows:

1. A flexible instrument, comprising:
 - a flexible member having an intermediate portion and a distal tip;
 - at least one fiber-optic intermediate sensor disposed at a predetermined point along said intermediate portion of said member for providing an intermediate path signal indicative of the path of said intermediate portion of said flexible member; and
 - at least one distal sensor positioned proximate said distal tip of said flexible member for providing a distal tip position signal which is independent of the intermediate path signal and indicative of the position of said distal tip of said flexible member;

wherein said flexible instrument is configured to sense a controlled magnetic field.
3. The flexible instrument of claim [2] 1 wherein said controlled magnetic field is a three-dimensional magnetic field generated using a plurality of controlled magnetic coils.
4. The flexible instrument of claim [2] 1 wherein said at least one distal sensor comprises a magnetic tip sensor for sensing said controlled magnetic field.
14. A flexible instrument, comprising:
 - a flexible member having an intermediate portion and a distal tip;
 - at least one fiber-optic intermediate sensor disposed at a predetermined point along said intermediate portion of said member for providing an

intermediate path signal indicative of the path of said intermediate portion of said flexible member;

at least one distal sensor positioned proximate said distal tip of said flexible member for providing a distal tip position signal which is independent of the intermediate path signal and indicative of the position of said distal tip of said flexible member; and

a processor responsive to said intermediate path signal and said distal tip position signal for providing an indication, in a common reference frame, of the position and angular orientation of said distal tip and said intermediate portion of said flexible instrument;

wherein said flexible instrument is configured to sense a controlled magnetic field.

In the abstract:

A flexible instrument, which is configured to sense a controlled magnetic field, includes a flexible member having an intermediate portion and a distal tip. At least one fiber-optic intermediate sensor disposed at a predetermined point along the intermediate portion of the member provides an intermediate path signal indicative of the path of the intermediate portion of the flexible member. At least one distal sensor positioned proximate the distal tip of the flexible member provides a distal tip position signal which is independent of the intermediate path signal and indicative of the position of the distal tip of the flexible member.

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In the abstract:

A flexible instrument, which is configured to sense a controlled magnetic field, includes a flexible member having an intermediate portion and a distal tip. At least one fiber-optic intermediate sensor disposed at a predetermined point along the intermediate portion of the member provides an intermediate path signal indicative of the path of the intermediate portion of the flexible member. At least one distal sensor positioned proximate the distal tip of the flexible member provides a distal tip position signal which is independent of the intermediate path signal and indicative of the position of the distal tip of the flexible member.

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